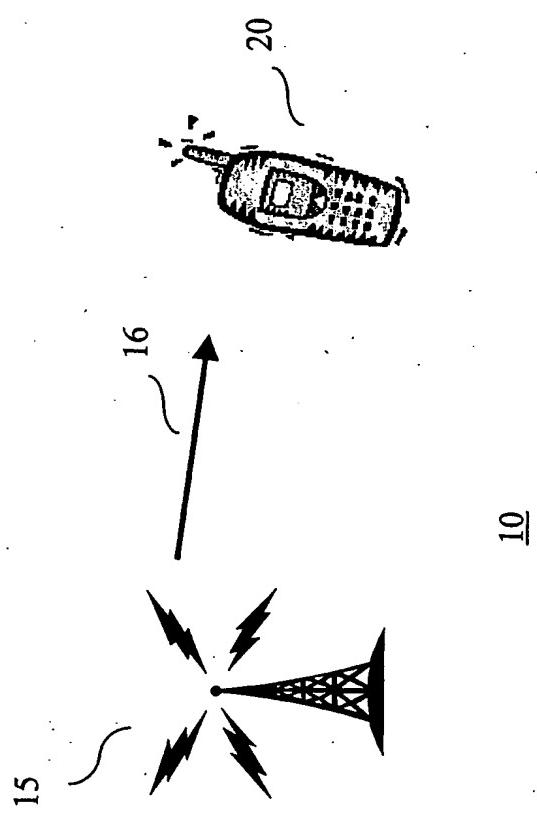


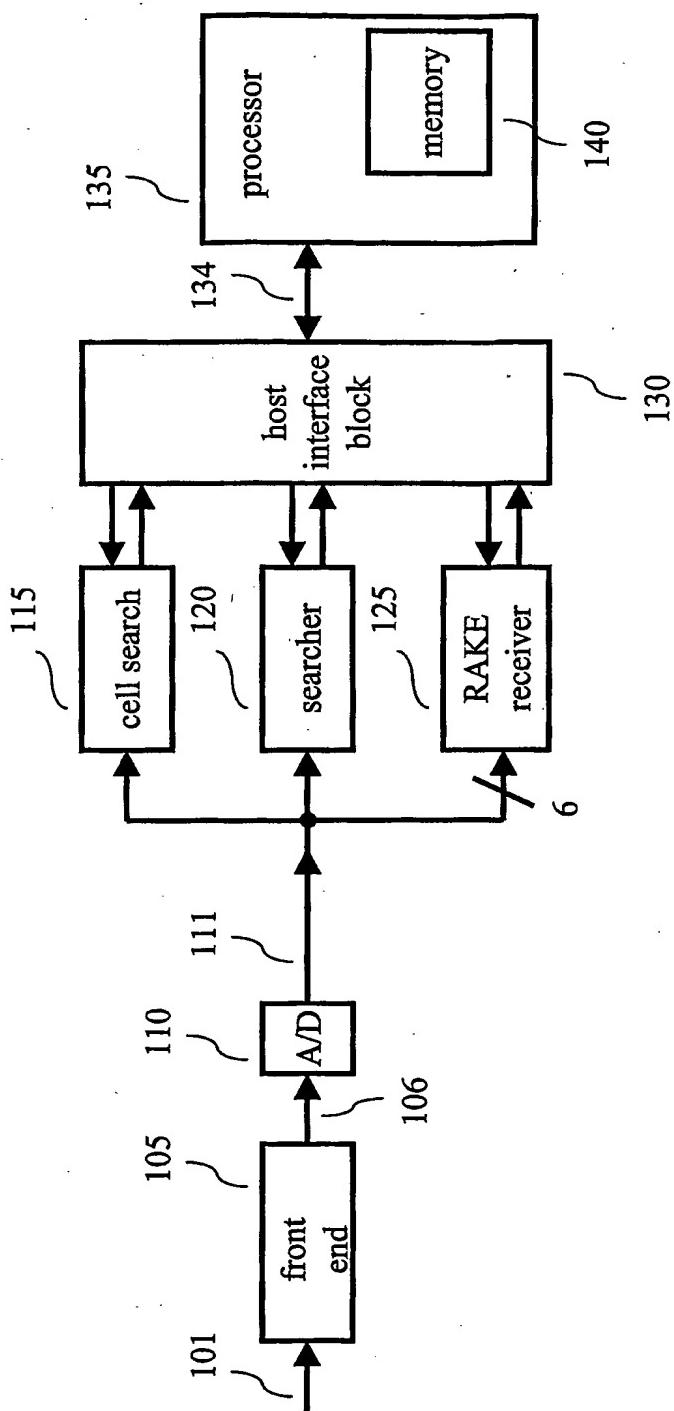
1/10

FIG. 1



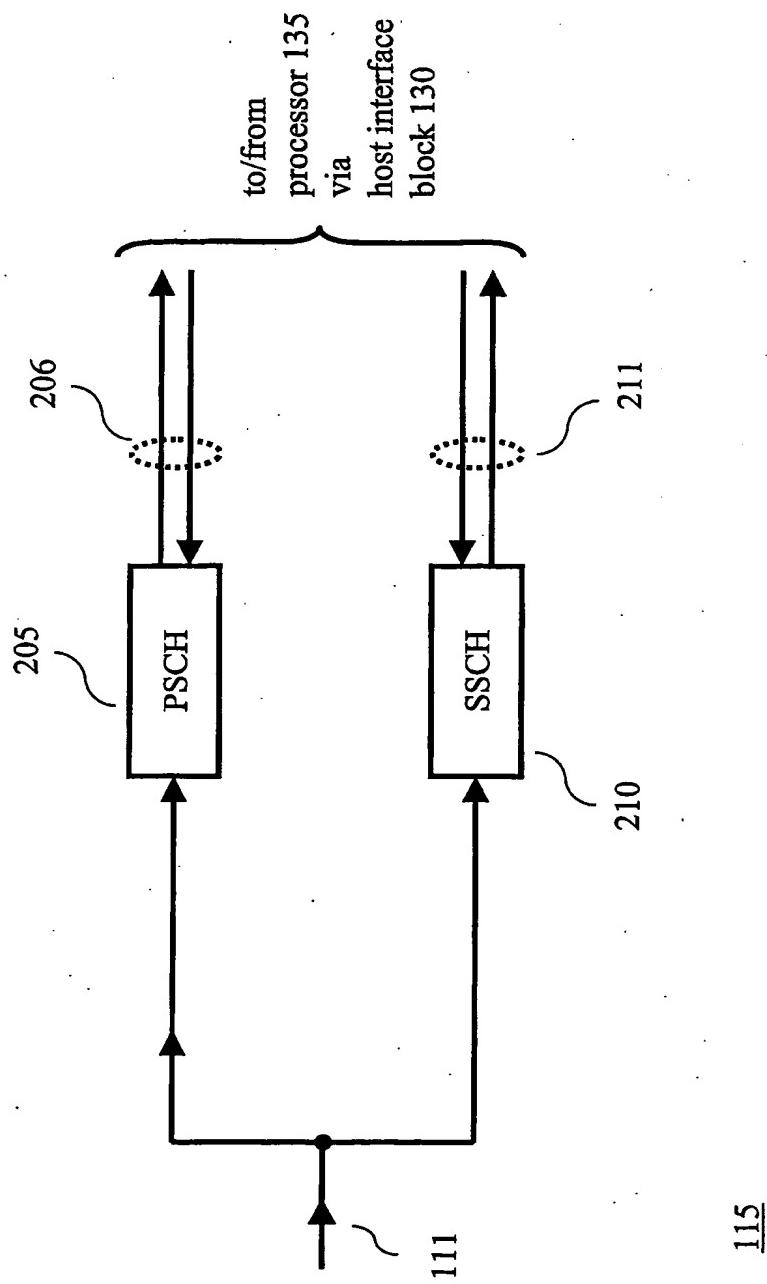
2/10

FIG. 2



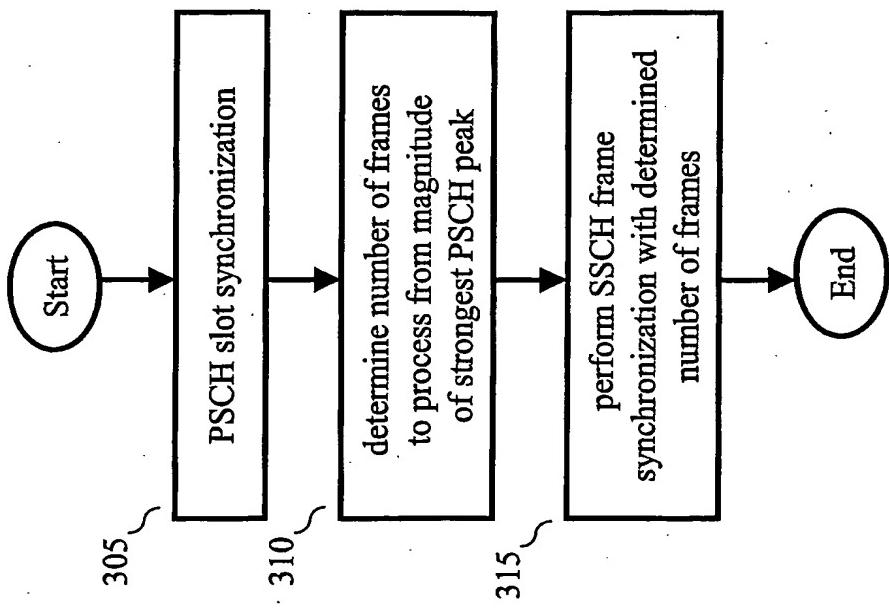
3/10

FIG. 3



4/10

FIG. 4



5/10

FIG. 5

correlation peak values	number of frames (N)
k_1	1
k_2	2
• • •	• • •
k_j	10

41

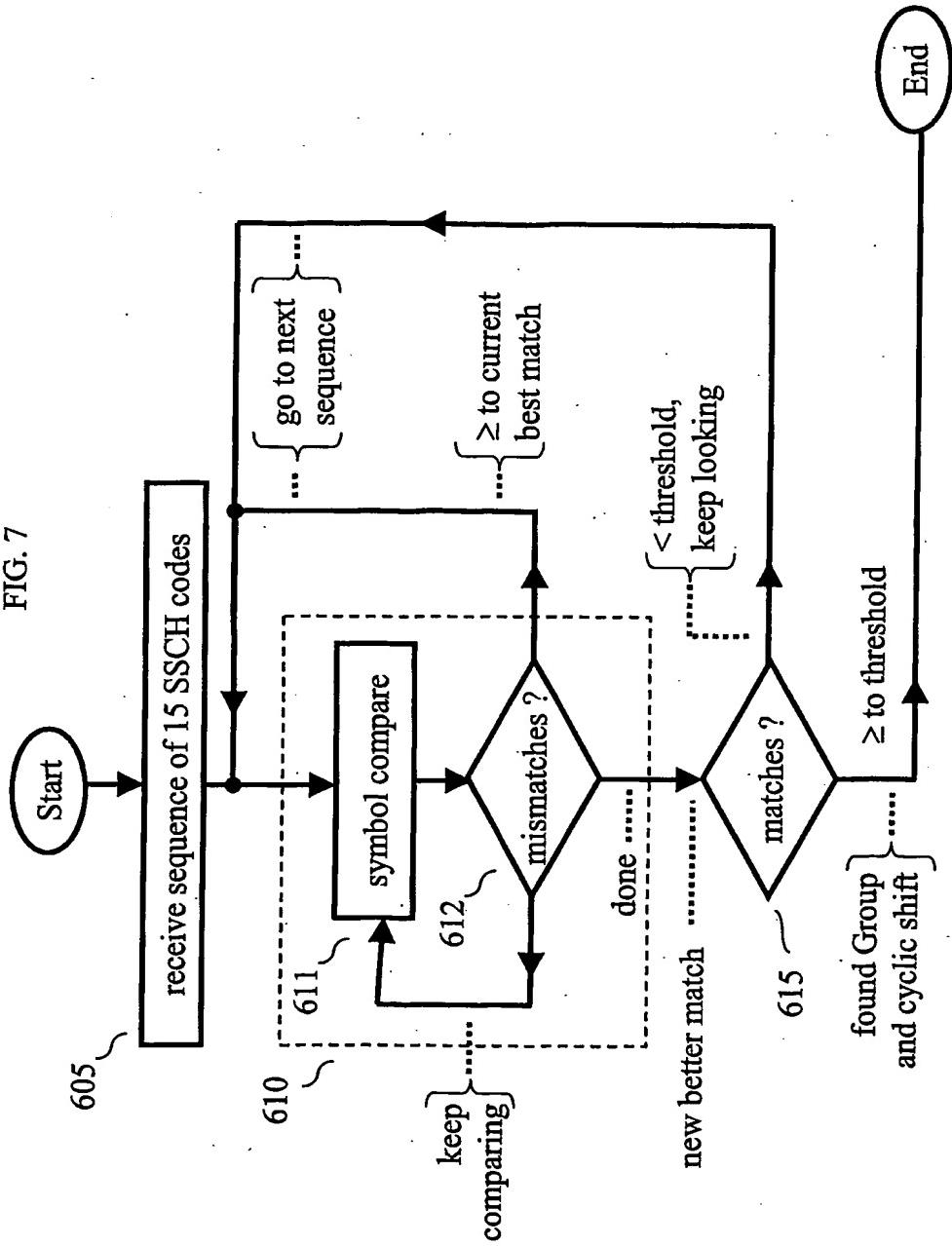
6/10

FIG. 6

```
// determine code group and frame offset
err = 100000; // initially set error to large value
// compare buffer against all possible code groups
for (i=0;i<64;i++)
{
    // compare against all 15 possible shifts of code
    for (k=0;k<15;k++)
    {
        current_err = 0; // reset to zero
        for (j=0;j<15;j++)
        {
            current_err += abs(peak_idx_buff[j] - code_groups[i][j+k] % 15);
        }
        // check if closer than previous comparison
        if (current_err < err)
        {
            err = current_err; // set new error value for comparison
            code_group = i; // current estimate of scrambling code group
            offset = k; // current estimate of offset measured in slots
        }
    }
}
```

7/10

FIG. 7



8/10

FIG. 8

```

match = 0;                                // initial values

mismatch = 15;
for (i=0;j<64;j++)                      // compare buffer against all possible code groups
{for (k=0;k<15;k++)                      // compare against all 15 possible shifts of code
{current_mismatch = 0;
for (j=0;j<15;j++)
{if (peak_idx_buff[i] != code_groups[i][(i+k) % 15])
{
current_mismatch++;
}
if (current_mismatch == mismatch)          // same number of errors as current best match
{
j = 15;                                // force out of FOR loop
}
if (current_mismatch == 0)                  // check if perfect match found
{code_group = i;
offset = k;
j = 15; k = 15; i = 64;}
else if (current_mismatch < mismatch)
{mismatch = current_mismatch;
code_group = i;
offset = k;}
}
}
}

```

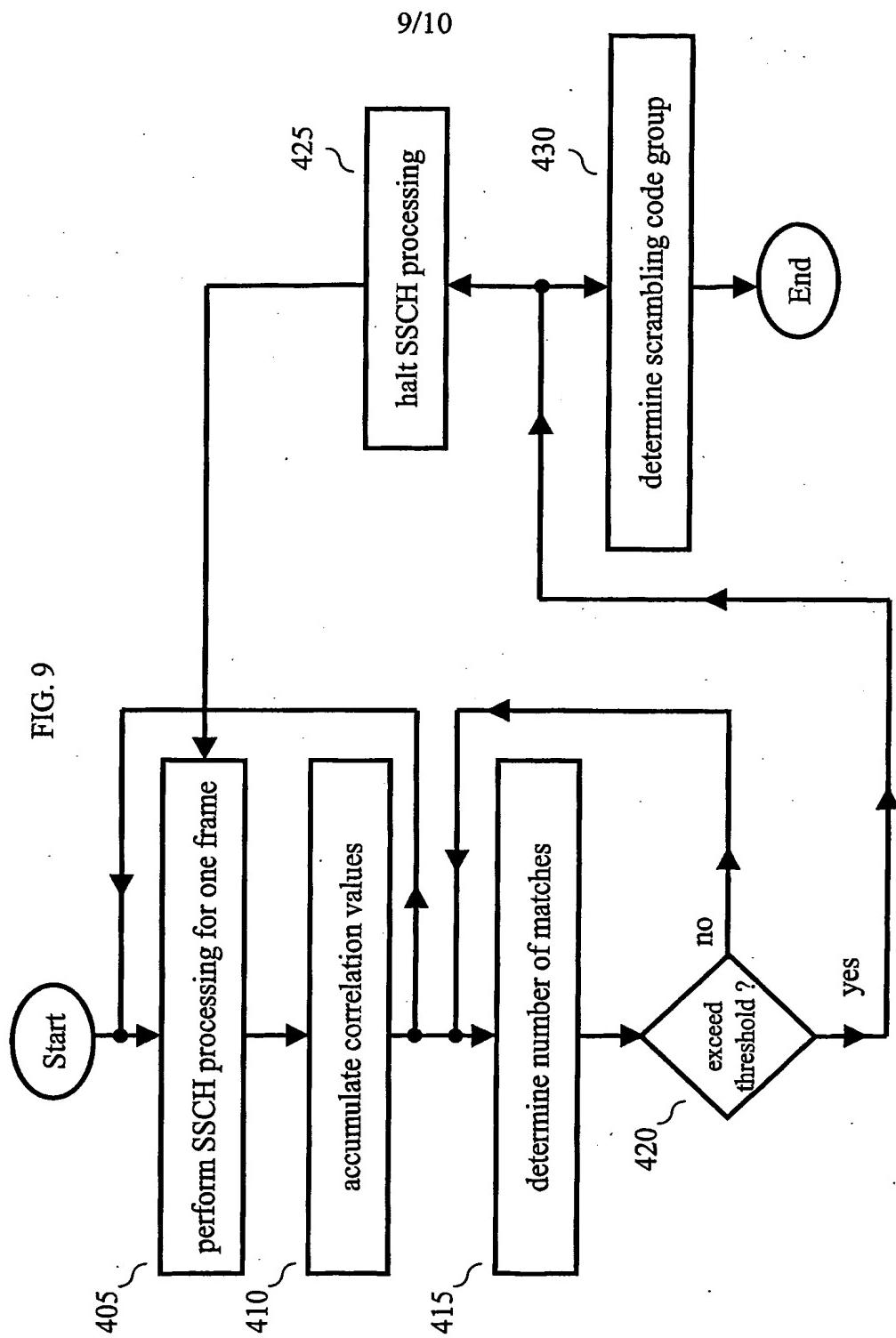
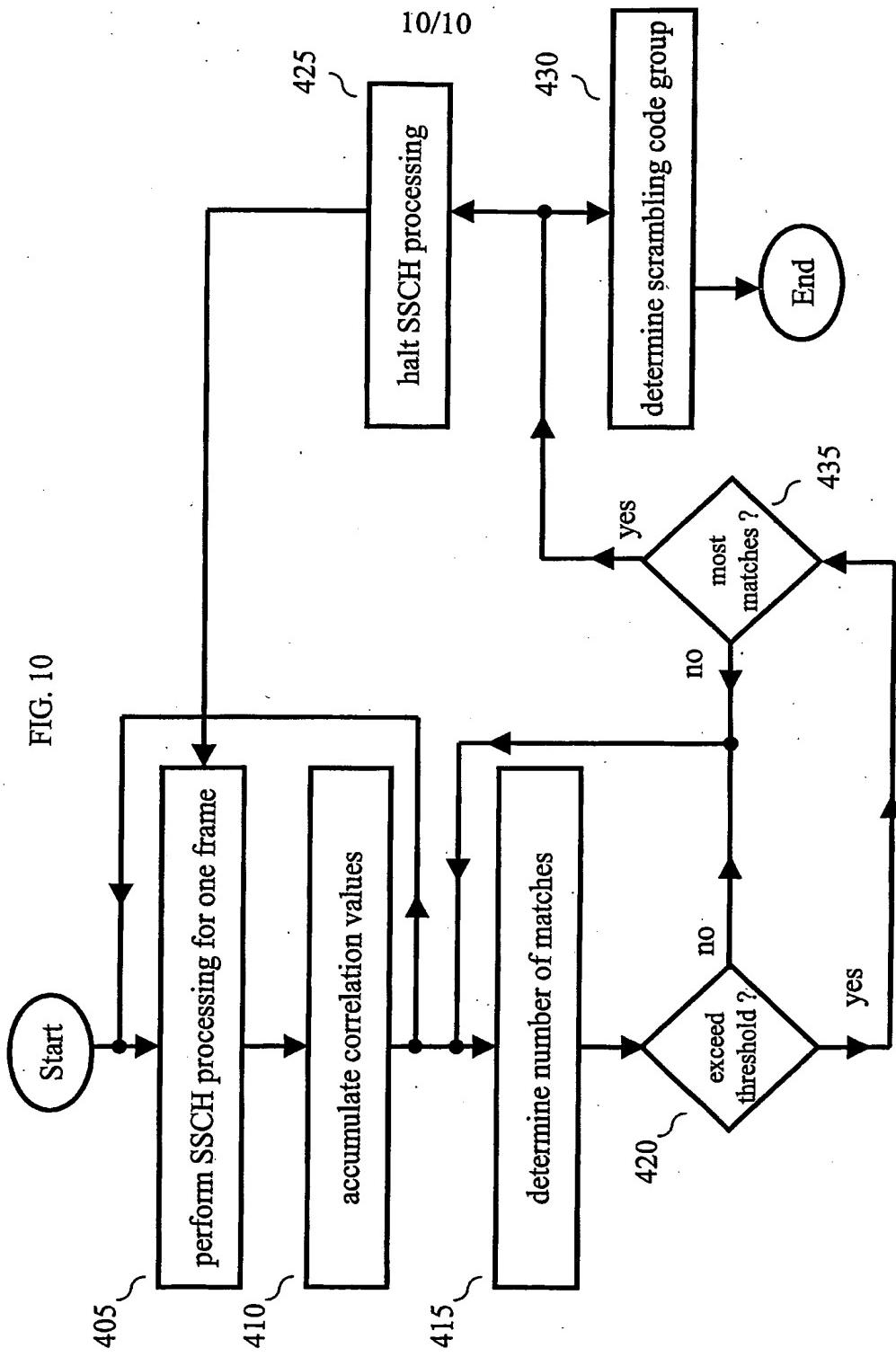


FIG. 10



INTERNATIONAL SEARCH REPORT

International application No.

PCT/US03/24348

A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : H04J 3/06; H04B 1/60, 7/216; H04Q 7/00

US CL : 370/513, 514, 331, 332, 342, 335; 455/500, 502, 9

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 370/513, 514, 331, 332, 342, 335; 455/500, 502, 9

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X, P	US 2004/0022273 A1 (JO ET AL.) 05 FEBRUARY 2004, PAGE 2, [0022] [0023] [0024].	1-20
X, P	US 2003/0236098 A1 (HAYOUNO) PAGE 2, [0039] [0040] [0041] [0042] [0043].	1-20
A	US 2003/0081571 A1 (HUR) 01 MAY 2003, PAGE 2, [0022].	1-20
A	US 2002/0064146 A1 (OKUYAMA) 30 MAY 2002, PAGE 3, [0044] [0049] [0050] [0051] [0052].	1-20

Further documents are listed in the continuation of Box C.

See patent family annex.

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"T"

later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"E" earlier application or patent published on or after the international filing date

"X"

document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"Y"

document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"O" document referring to an oral disclosure, use, exhibition or other means

"&"

document member of the same patent family

Date of the actual completion of the international search

Date of mailing of the international search report

28 June 2004 (28.06.2004)

20 JUL 2004

Name and mailing address of the ISA/US

Authorized officer

Mail Stop PCT, Attn: ISA/US
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

Wellington Chin

Faxsimile No. (703)305-3230

Telephone No. (703) 305-3900